# DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

# LAKE TROPHIC DATA

# MORPHOMETRIC:

Lake: WARREN LA	KE	Lake Area (ha):	75.07
Town: AL	STEAD	Maximum depth (m):	4.2
County: Ch	eshire	Mean depth (m):	2.2
River Basin: Co	nnecticut	Volume (m³):	1671000
Latitude: 43		Relative depth:	0.4
Longitude: 72	°17'20" W	Shore configuration:	1.79
Elevation (ft):	1200	Areal water load (m/yr	): 8.43
Shore length (m	5500	Flushing rate $(yr^{-1})$ :	3.80
Watershed area	(ha): 1309.9	P retention coeff.:	0.57
% watershed pon	ded: 0.0	Lake type: natur	al w/dam

BIOLOGICAL:	15 January 1992	24 June 1991
DOM. PHYTOPLANKTON (% TOTAL) #1	DINOBRYON 50%	DINOBRYON 50%
#2	ASTERIONELLA 40%	CHRYSOSPHAERELLA 50%
#3		
PHYTOPLANKTON ABUNDANCE (cells/mL)		400
CHLOROPHYLL-A (µg/L)		1.82
DOM. ZOOPLANKTON (% TOTAL) #1	KERATELLA 52%	NAUPLIUS LARVAE 34%
#2		DAPHNIA 13%
#3		CALANOID COPEPODS 11%
ROTIFERS/LITER	62	50
MICROCRUSTACEA/LITER	22	135
ZOOPLANKTON ABUNDANCE (#/L)	98	209
VASCULAR PLANT ABUNDANCE		Scat/Common
SECCHI DISK TRANSPARENCY (m)		3.6
BOTTOM DISSOLVED OXYGEN (mg/L)	10.1	7.9
BACTERIA (fecal col., #/100 ml) #1		< 1
#2		< 1
#3		

# SUMMER THERMAL STRATIFICATION:

# not stratified

Depth of thermocline (m): None Hypolimnion volume (m³): None Anoxic volume (m³): None

CHEMICAL:	Lake: WARREN LAKE Town: ALSTEAD					
	15 Janua	ary 1992	24 3	June 1991		
DEPTH (m)	1.0	3.0	1.5		3.5	
pH (units)	6.2	5.9	6.7		6.4	
A.N.C. (Alkalinity)	3.0	2.4	3.2		1.6	
NITRATE NITROGEN	0.07	0.06	< 0.05		< 0.05	
TOTAL KJELDAHL NITROGEN						
TOTAL PHOSPHORUS	0.013	0.015	0.011		0.013	
CONDUCTIVITY (µmhos/cm)	56.8	56.8	53.2		54.3	
APPARENT COLOR (cpu)	22	22	16		18	
MAGNESIUM			0.94			
CALCIUM			2.5			
SODIUM			4.9			
POTASSIUM			0.59			
CHLORIDE	9	9	8		8	
SULFATE	7	6	5		6	
TN : TP						
CALCITE SATURATION INDEX			3.7			

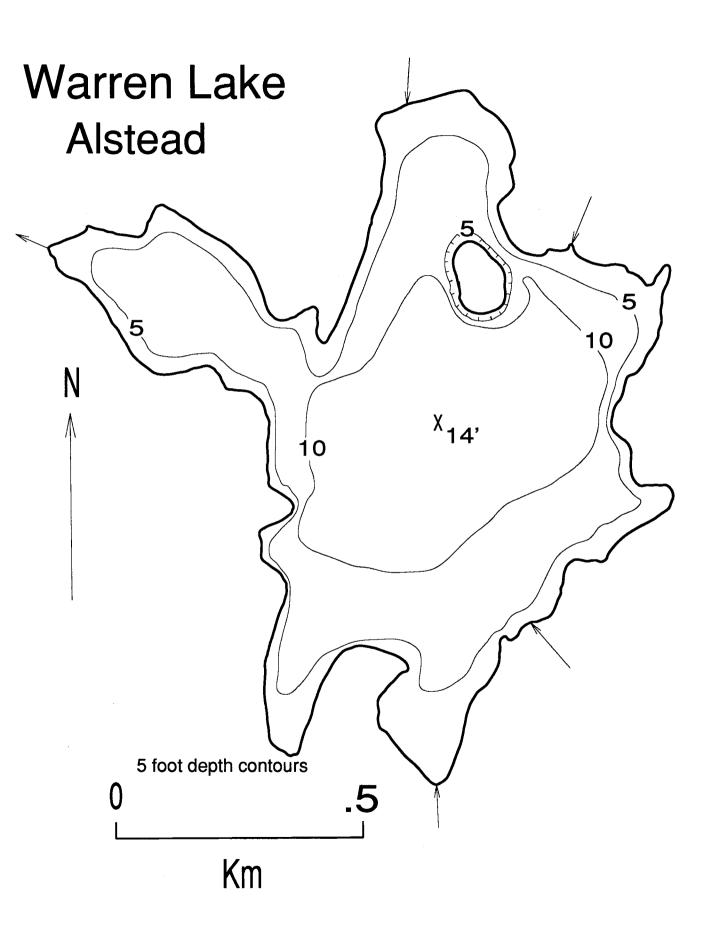
All results in mg/L unless indicated otherwise

#### TROPHIC CLASSIFICATION: 1991

_	D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
	**	2	2	0	4	Oligo.

#### **COMMENTS:**

- 1. This lake was previously surveyed and classified in 1980 . The lake is borderline oligotrophic/mesotrophic. It fell in the mesotrophic class in 1980 and oligotrophic in 1991. A change of one trophic point in either year would have shifted the lake into the other classification. There was little change between the two years, although the rooted plant growth was more abundant and the algae less abundant in 1991.
- 2. A partly tarred boat ramp was located at the beach in the outlet cove.
- 3. <u>Cryptomonas</u> (20%), <u>Chrysosphaerella</u> (15%) and <u>Chroomonas</u> (15%) were the dominant genera of wholewater plankton. The dominant classes were golden algae (35%), Cryptomonads (35%) and greens (20%).



# FIELD DATA SHEET

LAKE: WARREN LAKE

DATE: 06/24/91

TOWN: ALSTEAD

WEATHER: PARTLY SUNNY & BREEZY: 75 F

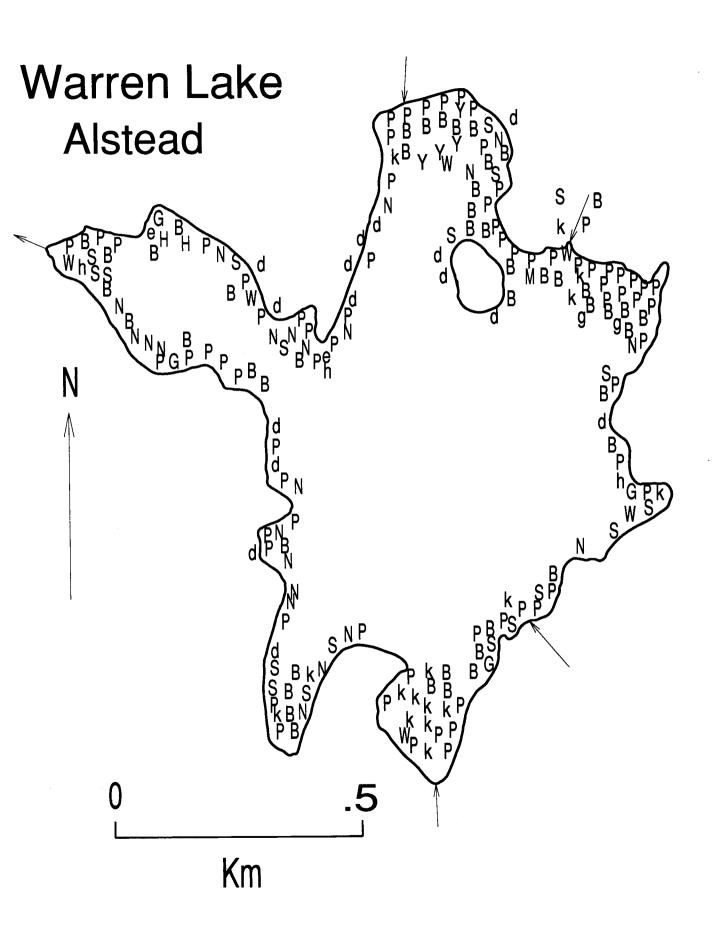
DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	23.2	9.9	112 %
1.0	23.2	9.8	113 %
2.0	23.0	9.6	111 %
3.0	22.8	8.7	98 %
3.5	22.6	7.9	89 %

SECCHI DISK (m): 3.6 COMMENTS:

BOTTOM DEPTH (m): 4.0

TIME: 1300

\*Dissolved oxygen values are in mg/L



# AQUATIC PLANT SURVEY

LAK	E: WARREN LAKE	TOWN: ALSTEAD	DATE: 06/24/91
Key	PLANT	ABUNDANCE	
icy	GENERIC	COMMON	ABUNDANCE
Y	Nuphar	Yellow water lily	Scattered
N	Nymphaea	White water lily	Scattered
В	Brasenia schreberi	Water shield	Common
P	Pontederia cordata	Pickerelweed	Common
S	Sparganium	Bur reed	Scattered
K	Nitella	Stonewort, Muskgrass	Common
W	Potamogeton	Pondweed	Sparse
G	Gramineae	Grass family	Sparse
d	Dulichium arundinaceum	Three-way sedge	Scattered
g		Bottom growth	Common
M	Myriophyllum humile	Water milfoil	Sparse
h	Gratiola lutea f. pusilla	Dwarf hyssop	Sparse
С	Chamaedaphne calyculata	Leatherleaf	Sparse
е	Eleocharis	Spike rush	Sparse
Н	Equisetum	Horsetail	Sparse
f	Chlorophyceae	Filamentous green algae	Common
		A	

# OVERALL ABUNDANCE: Scat/Common

# **GENERAL OBSERVATIONS:**

- Filamentous algae was frequently observed entangled amongst the rooted plants' stems.
- 2. Plant growth was abundant in the southern and northern coves.